Functional behavior	The robot - in isolation - does not perform its intended basic functionality according to specification during the demo (- 20 points)	Evidence has been given that the robot - in isolation - performed its intended basic functionality according to specification at some time (+ 20 points)	The robot - in isolation - performs its intended basic functionality according to its specification during demo/testing (+ 20 points)	The robot is sturdy, and mechanically and electronically well-built (+ 10 points)	The robot reports on its internal state in - for debugging purposes sufficient - detail (+ 10 points)	the robot distinguishes the black ≠ white tiles without errors (points)	the sensors give the correct output (points)
Fault detection	The robot detects faults that did not actually occur - false positives (- 15 points)	Evidence is provided that the robot was able to detect and/or identify at least three distinct types of faults at some time (+ 10 points)	The robot *detects* three or more types of faults as faults during demo/testing (+ 15 points)	The robot *identifies* three or more distinct types of faults during demo/testing. (+ 10 points)	The group is able to *predict* correctly how the robot will react to three 'surprise faults' invented and introduced by the jury during testing (and this reaction is non-trivial). (+ 15 points)	*the robot can recover from detected faults by guiding the user.* (points)	the robot does something when detecting error (points) eg. stops the conveyer belt
Engineering process	System spec The robot has been well specified. I.e. a clear set of use-cases, usage-constraints, and safety-properties is given that respectively describe intended behavior, desired operating conditions, and behavior that is to be avoided by the robot at all times. (+ 20 points)	Component and unit spec There is a clear decomposition of functionality of the robot into components/subsystems, and of components into units, and the function of these separate components and units has been well specified. (+ 20 points)	Implementation Good programming practice is shown. There is evidence of a good code-and-model reviewing process. Code has been properly commented and documented. (+ 15 points)	Implementation Code is based on a model-based design workflow. There is a clear higher-level model indicating how the group thinks about the software, and a clear link between that model and the software itself. (+ 15 points)	System and component test Testing scenarios are available and have been logged that cover each of the points in "Functional behavior" and "Fault detection". (+ 20 points)	clear software architecture (points)	the visualisation accurately represents the functionality of the robot (to points)
Formulate your group challenge	*Communication: the robot communicates correctly with the other parts of the factory during the execution of basic functionality* (X)	*Communication: The robot communicates correctly with the other parts of the factory when a fault in the robot occurs* ( )	*Communication: The robot reacts to three or more distinct types of faults that occur in it, in a way that influences the remaining robots in the factory as little as reasonably possible.* ( )	the robot tells the user what typo/error occured ( )	*Communication: The group has performed a formal verification of the protocol* ( )	the robot can implement custom user distortions (points)	the robot works as intended in every custom made (points)
Reporting	Proper logs and records of decisions have been made of all the activities within the DBL. The logs clearly reflect which activities were carried out and when, giving enough details for others to reproduce any experiment or other activity. The records of decisions clearly state which decision was taken and when, which problem it is intended to solve, how it will solve the problem, which other alternatives were considered and why they were discarded, what the risks are of the chosen decision, and who is responsible for carrying it out. (+ 20 points)	Logs, records of decisions, and final poster all clearly explain the system on two levels of abstraction. A high - architectural - level, at which the overall workings are explained in a way that can be grasped quickly, and a low - implementation - level at which the details are given with a reference to the high-level model explaining why the details are such. Clear figures are used for the explanation of the high level. The logs and records of decisions contain clear references to those high-level pictures, thus linking low level descriptions to the higher level architecture. (+ 20 points)	The final poster has a clear structure. It covers at least briefly the user-requirements (system level), robot specification and software specification (component level), robot design and software design (unit level), and robot implementation and software implementation. References are given to the logs and records of decisions, pointing out details of design decisions, details of tests, etc. (+ 20 points)	The general appearance of the poster is pleasing. Tables and graphs have been properly laid out. Figures are readable and free of distractions that do not contribute to the goal of the report. The logs, records of decisions, and poster have been written in correct British or American English (+ 20 points)	The group has given a convincing final demo and pitch, well rehearsed, structured, complete, well-tuned to the audience, enjoyable, yet concise. (+ 20 points)	the group has given a convincing mid-term presentation (X points)	clear records of the division of tasks that allowed the team to work efficiently (X points)
Various	A deadline or other group-responsibility was missed (- 5 points per deadline)	Practical material and locker-keys were not returned in time (- 40 points)	Exceptionally bad functioning of the group as a whole on multiple occasions (- 40 points)	Room for the student-assistants to express their feelings about this group (+/- 20 points)	Room for the practical coordinator / grading teacher to express his/her feelings about this group (+/- 20 points)	Room for rewarding points for various other outstanding achievements (+ 30 points)	the group worked well together (X points)

Table 1: Guideline for the final scoring by the practical coordinator, tutors, and jury. The blue and green areas are considered essential and cannot be adapted! To calculate the final grade for the group, first check if the blue score is higher than 120, and check that the green score is higher than 60. If not, the group should not pass the course. If the blue and green scores are sufficient, the final grade is determined by weighing: 4 times the percentage scored in blue boxes, 1.5 times the percentage scored in green boxes, and 4 times the percentage scored in the white boxes. The scores in red and yellow boxes may be subtracted or added to blue, red, or white at the discretion of the jury.